FORCES SHAPING MOBILITY STRATEGIES

SUMMARY OF A TWO DAY SYMPOSIUM HELD IN SACRAMENTO ON NOVEMBER 30 – DECEMBER 1, 2000

Report Prepared by
Jonathan Mason
Department of City & Regional Planning
University of California, Berkeley

This report was prepared as part of a project sponsored by the California Department of Transportation, Transportation Planning Program, with funding from the Federal Highway Administration, under Interagency Agreement No. 74A0011. The views expressed herein are those of the conference speakers, participants and author of this report and do not necessarily represent the views of the State of California or the Federal Highway Administration.

TABLE OF CONTENTS

Summary of Symposium on Forces Shaping Mobility Strategies

I. Introduction

The purpose of this symposium was to begin identifying and analyzing demographic, economic, technological, environmental, and financing factors that are shaping California's future, and that create the context for formulating future transportation policies and plans.

This session was the first of three planned programs designed to help inform and complement the development of a State Transportation Plan to meet California's needs for the next 20 years. The other two activities will be a major conference on June 21-22, 2001 and a final symposium planned for the fall of 2001.

These programs are being presented by UCLA Extension's Public Policy Program and are sponsored by California Department of Transportation.

Participants in the November 30 - December 1, 2000 Symposium included academic researchers, an array of state and local government officials, and representatives of interested stakeholder groups and non-profit organizations. Maria Contreras-Sweet, the Secretary of the California Business, Transportation, and Housing Agency, and Jeff Morales, the Director of Caltrans, both addressed the participants. (Note: titles and affiliations of all speakers in this summary are identified in the appendix.)

Secretary Contreras-Sweet opened the Symposium with an overview of progress on the Commission on Building for the 21st Century which is taking a sweeping look at California's infrastructure needs. The Commission is comprised of major committees focused on transportation, resources, facilities, technology, and finance. In the transportation area, greater emphasis is being placed on goods movement needs. The Commission's interim report led the Governor to put together a $5.3 billion Traffic Congestion Relief Plan, the single largest allocation for transportation in California's history.

A new theme in the Administration is connectivity between regions and systems. The Secretary asserted that Caltrans must be more than a highway department - it needs to help develop choices beyond the dominant automobile. Her agency is also concerned with the connectivity among housing, transportation, and employment. The Commission's report will be finalized in 2001. The Governor's mandate is to outreach into the community in both the Commission's report and development of the State Transportation Plan.

Certain key themes were emphasized throughout the Symposium:

California is growing rapidly. The population is expected to grow by approximately 10 million people over the next 20 years. This rapid growth and the diverse composition of the population represent a great challenge to transportation policy and planning in California.

The political timetable is often antithetical to long-range planning issues. The political horizon for getting funding is typically a matter of months or a couple of years, but long-term thinking and commitments to investment are necessary for effective planning of transportation infrastructure.

The need for flexibility and reliability is crucial. With many uncertainties about the future, there is a strong need to have the capacity to be adaptable. The emerging information economy is increasingly dependent on both the reliability and flexibility of the overall transportation system.

Testing alternative scenarios is useful. In formulating a State Transportation Plan, the ability to test alternative scenarios and present them to stakeholders and the public is important for political support. Forecasts and opinion polls are only models of reality, not reality itself, so we need the ability to experiment and test alternative scenarios. A Geographic Information System (GIS) is an example of a very good presentation tool.

II. Demographics: California's Population in 2020

How Many People, Who Are They, Where Will They Live, and What Does This Mean for Statewide Transportation Planning?

Statewide transportation planning must reflect certain demographic imperatives. Transportation infrastructure requires long-term investments, so an understanding of demographic trends is crucial for effective policy. Hans Johnson and Sandra Rosenbloom were the formal speakers for this session.

High Rate of Population Growth

With a current population of roughly 35 million, California is expected to grow by approximately 10 million people over the next 20 years. California's high rate of growth is unique for a developed region, but the source of population growth has changed from earlier in the twentieth century. The new growth will be due mostly to natural increases rather than a net migration. Latino and Asian populations have grown rapidly, while African American and White populations have been stable, leading to the likelihood that California will soon be a "minority majority" state.

Immigration from Other Countries

The in-migration that is occurring is coming mostly from other countries rather than from the rest of the United States. Mexico is the leading source of immigrants. The result of the immigration will be an increasingly diverse California population with no single ethnic group composing a majority of the population.

Over the short term, migrants' travel behavior is different; but after one or two generations of acculturation, multiple ethnicities are not likely to result in significantly different travel patterns.

Spatial Distribution of the Population

Inland areas of California will experience faster rates of population growth than from the coastal areas, which will experience a relatively slower rate. The Central Valley, for example, will increase from about 8% of the state's population to 10-12% over the next 20 years and possibly to 15% by 2040. The population share between northern and southern California will remain roughly constant at the ratio of 45/55. Most growth will be at the urban edges, but there will also be some "infill" growth and densification of existing urban areas.

Aging of the Population

Population forecasts diverge over the longer haul, where there is more uncertainty. However, it seems certain that the population in California will grow both younger and older – the middle-aged population will be stable or even declining. Hans Johnson declared that the graying of California is certain. The aging is a profound policy issue, especially as the "Baby Boom Generation" grows older. The aging of the population will have significant policy implications that must be addressed statewide transportation planning.

Travel Patterns

Elderly people do have different travel patterns than the rest of the population, and they are not a marginal group. Even the elderly who are not poor have special needs. The elderly also display differences in travel patterns within their own group, as evidenced by different travel patterns among ethnicities. These differences are explained mostly by cultural norms and preferences rather than income.

The elderly are often quite dependent on driving, and old people tend to drive even for short trips. Most older people will expect to travel a lot in the future, and many will expect to age "in place" in the suburbs. Public transit is geared for the work trip, which does not serve the elderly travel pattern well. Older people are also more likely to perform "surplus" travel, such as scouting trips to check the accessibility of a destination in advance.

Safety Issues

The elderly have fewer crashes per capita, but their exposure rates are higher, making them more likely to be injured in an accident. Older drivers often self-regulate their driving patterns. For example, they might not drive at night with poor eyesight. However, it is uncertain whether this behavior will continue in the future. Licensing and evaluation procedures are important for getting unsafe drivers off the road, but unless alternatives are offered, the elderly will likely drive as long as possible.

Martin Wachs noted that it is difficult to determine future safety issues for elderly populations, and Sandra Rosenbloom concurred that medical data is not predictive of accident rates. It has more to do with individual behavior than general characteristics of the elderly.

Social Issues

Discontinuities in lifestyles exist with the end of the ability to drive. This will place a burden on family, friends, and social service providers. Certain elderly people depend on their family members for travel, placing an enormous burden on middle-aged women to chauffeur elderly people. Demographic trends also suggest that there are fewer family members around to take care of the elderly.

Policy Directions

For those elderly who are still capable and interested in driving, policies can be created that benefit both the elderly and the general population:

Vehicle technology

Vehicle technology, such as night-vision sensors, can assist the elderly with diminishing abilities. Passive technologies, such as night-vision windshields, are often clearly beneficial and demonstrate merit. However, certain technologies that require active control or the following of complex procedures can actually be a hindrance to the diminishing capabilities of many elderly, particularly if they are driving alone.

Improved roadway design and larger signage with better reflectivity

These measures would certainly assist the elderly, and benefit all users of the transportation system.

For those elderly who are not capable of driving or should not be driving, the issues are more complex. Some programs, such as paratransit, are designed to get elderly drivers off the road; however, paratransit can't accommodate all the elderly and it is too expensive. They have to be offered additional options, or they are likely to keep driving when they shouldn't.

Different types of transit

Professor Mel Webber commented that transit works best when it behaves like an automobile. For example, taxis can be an effective and cost efficient "transit

system" for the elderly. Taxi vouchers for low-income elderly could offer such flexibility at a reasonable cost. However, two concerns were raised. First, the elderly may have some aversion to taxi service due to a fear about the people driving taxis. Secondly, there is a policy concern that a "black market" in taxi vouchers may develop.

Role for private sector in transit provision for the elderly
The relative roles of the private and public sectors in transit provision for the elderly was evaluated. Paratransit is simply not sufficient, and it currently requires expensive public subsidies. The danger of producing an unsustainable social entitlement was voiced, whereby public subsidies may be wasted on services that could be privately provided. "Can we come up with an answer that the elderly should not rely on public subsidy and use their private resources?" The elderly on average are the wealthiest demographic age group. Making use of the elderly's own resources to sustain private transit services for their use would be efficient; however, Sandra Rosenbloom emphasized that decent transit should also have a social emphasis with universal service provision. Stephen Levy argued that the mobility issues of the elderly should be addressed directly and fundamentally, and it has been the failure of U.S. transportation policy to parcel out the problems of certain minorities to constituency politics.

Land use planning and housing
Improved land use planning, such as retirement housing being located within close proximity to medical facilities, might encourage alternative modes, but it is important to consider that land use change is often very gradual.

III. Economic Trends, Transformations, and Transportation

Broad agreement exists among economic forecasters that the California economy will continue to outperform the nation as a whole. Stephen Levy believes there has been a systematic failure to keep up transportation capacity with population and job growth, but capacity increases in transportation do not necessarily mean building new facilities. Information technology may create new efficiencies within the existing physical infrastructure. Genevieve Giuliano explored emerging economic trends and the resulting implications for urban form, and ways these link to transportation issues.

The Relationships Between Transportation Investments and the Economy are Complex

Throughout history, lowering the costs of traversing distance has increased economic productivity and social opportunity. More recently, innovations in highways, transit, freight containerization, and air travel have been major factors in economic growth. They have facilitated the globalization of industry and given rise to greater efficiencies, such as "Just-In-Time" production systems. Foremost, production systems demand reliability from the transportation networks.

Some are fearful that increased congestion and the declining supply and deterioration of infrastructure might lessen industrial growth, and that this is causing daily life to be less satisfying to the general population. As Giuliano and Levy both noted, however, a transportation investment does not produce economic growth. It can only facilitate growth. Infrastructure investment is not necessarily about growth; however, it is about recovering deadweight losses in productivity and quality of life to people suffering from lack of service provision and/or declining environmental quality.

An important theme throughout transportation history has been acquiring the proper infrastructure to capture dominant freight and passenger market trends. Without the correct infrastructure capabilities, a region is at a competitive disadvantage. Federal policies and international market trends drive infrastructure "sizing" (the trend to bigger container ships, bigger aircraft, etc.). California needs to develop a more coherent approach and exercise a more concerted voice in standard-setting and policy-making at the national level.

The Complementarity of Transportation and Information Technologies

It has sometimes been thought that telecommunications and transportation links were substitutes for one another, but the historical evidence strongly suggests that they are complementary. The telegraph, telephone, and other forms of telecommunication have all complemented transportation investments, allowing for greater efficiency in transportation system operations. Today, the Internet and e-commerce continue those trends and, indeed, are rapidly accelerating them.

Travel of all kinds is increasing in the era of the Internet and inexpensive telecommunications. Air travel is growing rapidly, both in passengers and freight, within the information economy. Of particular note, the San Francisco area is acutely experiencing a rapid growth in air traffic, and the Los Angeles region is facing a huge increase in truck movements. All metropolitan areas, however, are experiencing rapid growth in both air and ground transportation. More attention needs to be paid to freight, since goods movement is a very pressing issue.

The Information Economy's Impact on Work and Travel

The electronic economy is changing the nature of work in that the times and places of work are being altered. At the same time, this is causing both a

general decentralization of activities in space and a concentration of certain activities within a general pattern of deconcentration.

Economists often describe the existence of a “new economy” based around networks of information, where production, consumption, and work patterns are fundamentally changing. Data confirms huge increases in temporary work, contract work, small-firm entrepreneurial work, flex-time, job-sharing and home based work. The mobile “knowledge” worker is also emerging, and they constitute a key part of California’s economic strength. Twenty percent of the population is involved in this “knowledge” sector. However, we know less about how these changes are likely to impact on the other eighty percent of the work force. Furthermore, the diversity of the California economy, both within and across regions, means that transportation strategies need to be carefully crafted to be responsive to how these differences in commute patterns are reflected in different locations. Also, data on “telecommuting”, as a significant replacement for work trips, suggests some cautions in making assumptions about major congestion relief from this trend.

Simultaneous Concentration and Deconcentration of Urban Form
Research work suggests that there is a simultaneous concentration and deconcentration of urban form, although deconcentration seems to be the stronger process.

The argument for continued concentration of economic activity is that it still produces efficiencies. Face-to-face still matters due to all the complexity created by the information economy. Telecommunications infrastructure mirrors transportation paths, allowing big cities to retain strong cultural advantages - what historians refer to as “path dependencies.” Global cities also perform as control centers. additionally, small entrepreneurial firms take advantage of the economic clustering available only in central places.

The argument for continued deconcentration is that the friction of distance is disappearing due to advances in communications and transport, as demonstrated by the dispersion of activities to cheaper places. People’s locational preferences also seem to be high-amenity, low-density environments. The trends in private sector employment suggest more rapid growth of this sector outside Metropolitan Statistical Areas (MSAs). Small MSAs are growing more rapidly than large MSAs.

Some futurists argue for the end of cities, but it is important to distinguish between dispersion and deconcentration. Places still matter, and we have not experienced complete dispersion through the “death of distance.” De-concentration actually suggests poly-concentration. Poly-centrism is perhaps the best description of the emerging urban form.

Globalization and telecommunications are certainly increasing the volume of goods movement and increasing long distance travel related to trade and tourism, and changing temporal and spatial patterns of daily travel. If we are to plan wisely for future California transportation, we must measure, analyze, and account for these transformations.

In summary, we can identify several spatial trends that are occurring simultaneously. There is growth and concentration in some centers where proximity to certain types of economic activity, affinity groups and concentrated cultural amenities are available. Some metropolitan areas may experience declines in their urban cores, while in other situations, growth is occurring in the contiguous fringe areas around metropolitan centers, and still other types of growth are occurring in non-contiguous regions. These new growth areas are disperse and offer environmental attractions to people with less dependence on daily contact with concentrated cores.

The Need for Flexibility and Adaptability

Genevieve Giuliano thinks change in the future is only going to get more volatile, requiring more flexibility. Because of a rapidly changing economy with unknown outcomes, flexibility and adaptability should be built into our future transportation system. She noted that highways are a good example of flexibility: they are multi-modal; their capacity can be altered; and they can carry different types of vehicles. Their adaptability allows the infrastructure to handle uncertainty regarding the future.

Another adaptive strategy is to tie some public transportation investments to people's willingness to pay for costs imposed. As technology for toll collection has improved, it is increasingly efficient to employ this principle.

IV. Technological Innovations in Transportation

Michael Meyer and Larry Dahms were the key presenters for this session. Meyer talked about future transportation innovations, while Dahms discussed deploying these technologies through institutional structures.

The Role of Technology

Technology has been one of the most important sources of progress in transportation for more than 1,000 years, and there is no reason to expect its importance to decline. Technology can address transportation issues concerning the environment, energy use, and congestion. The true challenge is guiding technology within the planning process, by developing a system of evaluation, choice-making, and stakeholder participation that treats technology as something other than forces outside of transportation planning.

Three Areas of Technological Innovation

Michael Meyer outlined three areas of technology at the frontier of innovation for transportation. They are automotive technology, system infrastructure technology, and information technology.

Automotive Technology

- Within the realm of vehicle technology, Meyer thinks the fuel cell shows great promise to be the predominant electromechanical power generation. He also thinks Hydrogen will be the fuel of choice in the next 40-60 years. Hybrid vehicles are likely a stepping stone for genuinely 'green' vehicles.

- Technology will likely make the automobile easier to use. New technologies should also make cars safer and more responsive.

- Hindrances are that time lag in fleet turnover will be significant and that there is an 'overselling' of some of these technologies.

Systems Infrastructure Technology

> *"Economically vital and competitive regional economies must have modern and efficient infrastructures – roads, bridges, highways, rail, energy systems, water and sewer (services), telecommunications, and airport and cargo facilities – that facilitate business expansion, relocation, trade, and investment. The most attractive regions for business expansion and investment during the 21st century will be those that give increasing attention to cutting-edge infrastructures that make business operations more efficient and responsive to international economic trends and allow businesses to operate more efficiently in the global economy."*
>
> Southern California Association of Governments, *New Solutions for a New Economic Environment*, 2000.

"Smart" infrastructure shows great promise of improving capacity without building new physical infrastructure. Older infrastructure is still a paramount concern, as maintenance and replacement cycles are coming due. In particular, bridges will be a key policy concern over the next few decades, and they will need significant maintenance and replacement.

Information Technology

> *"Virtual communities that networks bring together are often defined by common interests rather than by common location (...) The story of virtual communities so far, is urban history replayed in fast forward – but with computer resource use playing the part of land use, and network navigation systems standing in for streets and transportation systems (...) As more and more business and social interactions shift into cyberspace,*

we are finding that accessibility depends even less on propinquity, and community has become increasingly unglued from geography."

William Mitchell, *City of Bits: Space, Place, and the Infobahn*, MIT Press, 1996.

Information technology can be seen as both a "demand-side" generator of travel and a "supply-side" facilitator of travel. On the demand side, the networked information economy, a product of information technology, discussed earlier will greatly increase the amount of both passenger and freight travel. On the supply side, information technology allows increases in capacity and better monitoring capabilities. Information technologies facilitate system pricing, allowing for more efficient use of existing physical infrastructure.

Technology and Institutions

Flexible systems are necessary to integrate new technologies. It is one thing to have a technology and another to actually put it into practice. The latter is often harder to do well. Adopting technologies developed elsewhere and applying them to transportation is a trend that is likely to increase.

"We must look to technology for most of our solutions, and while civil engineering may give form to the new solutions, the technology that drives them is unlikely to start with [the civil engineering profession] ... Our response must be to draw fields that are advancing faster than ours wherever possible, and use that technology as a springboard for our own progress. Given the circumstances, technology transfer will be the mother lode for our future."

Wayne Clough, President of Georgia Institute of Technology, "Civil Engineering in the Next Millennium", keynote address presented at the Civil Engineering New Millennium Colloquium, Cambridge, Massachusetts, March 20-21, 2000.

Although the public sector significantly contributes to research and development activities, private markets are the institutions driving the development of new technology, especially information and communications technologies. Bringing this technology within the planning process is of crucial importance.

Organizational learning is necessary for rapid and effective innovations, and the private sector, spurred by competition and the profit motive, can often innovate much faster than the public sector. Mistakes in the private sector are often seen as a learning experience in preparation for future successes, while this does not necessarily hold in the public sector, where mistakes can be seen as politically damaging. Developing advanced technologies is not the mandate or responsibility of MPOs, so the question was raised whether MPOs should contract out technology development and implementation work to the better

suited private firms. Since flexibility is called for, teams and partners are likely to be more flexible than fixed institutional structures.

Institutions should move away from the focus on specific projects, and instead analyze entire routes and their levels of service. Institutions can fall into myopically focusing on the little problems while avoiding the fundamental problems. As an example, it was raised: why do we both expand airports and encourage high-speed rail?

V. Strategies for Addressing Sustainability in the Context of Transportation Planning

Elizabeth Deakin addressed the issues of sustainability in Europe and how California can learn from those experiences.

Definitions of Sustainability

The definition of sustainability came out of the Brundtland Commission of the United Nations in 1987 – *"meeting the needs of the present generation without compromising the needs of future generations"* – where CO_2 reduction was accepted as an important objective.

The definition has broadened considerably since, incorporating social as well as environmental dimensions: sustainable development should improve the standard of living and quality of life, while at the same time protecting and enhancing the natural environment and honoring local culture and history.

Specific Goals for a Sustainable Transportation Policy

- Improved service quality
- Safety
- Air quality
- Water quality
- Noise reduction
- Protection of habitat and open space
- Historic preservation
- Reduced carbon emissions

Lessons for California from Europe

The Europeans are further along than the United States in actually measuring and delivering a sustainable transport system. The performance measures are being accomplished by collaborative processes rather than technical experts in a closed office.

In Europe, social and environmental objectives are increasingly an integral part of sustainable transportation planning, rather than constraints or the focus of mitigation efforts. Transport agencies are also directly responsible for the social,

economic, and environmental performance of their systems. Policy priorities are shifting towards: 1) less environmentally damaging modes *and* improved vehicle technology, 2) optimizing the use of existing capacity, and 3) location and design decisions that support sustainability objectives.

Institutional Structure

Sustainability and the environment are clearly large-scale issues. How do we deal with large-scale issues when political power is devolving to smaller scales of governance? How do we deal with statewide issues with local government devolution? This is not just a California problem, but a worldwide problem. European governments are also being decentralized within the larger framework of the European Union.

In both the US and Europe, land use decision-making authority resides at the local level. Even in the Netherlands, a longtime leader in integrating transportation and land use policies, the land use decisions are still made at the local level, but in a form of federalism, national funds are made available to local governments as incentives for following certain planning procedures.

Europeans are increasingly using "backcasting" in policy studies, and this technique may well be desirable for transportation planning in California. Forecasting consists of projecting current and recent trends into the future to determine what future conditions might be like. Backcasting, in contrast, consists of starting with a condition that one would like to achieve at some future date, and then determining what trends would have to occur between the present and the future date in order to achieve the desired outcomes. Those trends are then used to shape policies that will assist in bringing about the desired outcomes. Leadership is considered important in first setting the standard, and collaborative planning, where incentives support action, is seen as producing meaningful results. Many small, specific measures add up to a lot, and they seem to be far more effective than grand schemes.

Mobility and Flexibility within a Sustainability Framework

European initiatives seek to integrate *both* a good environment and a good economy. Europeans are looking at technology in different ways, looking beyond technology as a supply-side issue. Europeans believe people should have many ways to move around. In a car-oriented society, able-bodied adults may have good mobility, but children and certain elderly people have a limited mobility.

It was noted that we should look at travel choice as distinct from mode choice. For example, some modes are clearly superior for certain types of trips, and encouraging different modes for those types of trips can be futile and wasteful. Within modes, different travel options can be provided, which should be seen as distinct from mode choice.

Highways and the automobile are also part of the sustainability program, but the emphasis is on sound management. It was pointed out that Europe is actually heavily dependent on truck traffic for moving freight, largely due to the limited development of East-West rail transport corridors after the Second World War.

VI. Financing Transportation in California

Martin Wachs and Dean Misczynski were the key presenters for this session.

Planning issues and finance issues should not be treated separately. Indeed, they are intimately related. Mechanisms of finance should be seen as inside the planning process, not outside it. Financial structures are as important as the facilities themselves, and political commitments for transportation finance are crucial. Term limits in politics, for example, have harmed long-term infrastructure commitments.

One Financial Structure Does Not Fit All

Local streets and major highway infrastructure should be financed differently. Local transportation should be financed through access fees from sales taxes and property taxes, since such infrastructure is for local uses and property enhancement. Interregional transportation infrastructure finance should return to the principle of relying on user fees (gas taxes, tolls, and congestion fees), since the actual users get the most benefit. Professor Wachs stated that he is even open to the idea of financing a rail system out of highway tolls, if it could be shown that such a system would be cost-effective. Highways may benefit from the congestion relief provided by an intercity rail system.

Five Principles for Transportation Finance

1. **The Principle of Financial Effectiveness –** *What is the potential for the measure to produce revenue?*
2. **The Principle of Transportation Efficiency –** *Are costs aligned with demand, to allow for a more efficient use of the system?*
3. **The Principle of Fiscal Efficiency** – *What are the economic costs of collecting revenue? For instance, is there potential for fraud or evasion?*
4. **The Principle of Equity** – the hardest to achieve – *Who gets what in the distribution of funds?*
5. **The Principle of Political Acceptability** – *Will measures pass political muster?*

Transit Needs to Be an Efficient Public Good

Transit funds should be first dedicated to areas where they can work effectively and efficiently, while still maintaining the value of transit services to those in most need of them. The more inefficient transit we have, the more public costs are required to subsidize it, becoming an increasing drain on the value of the public good it provides. Land use changes can improve the effectiveness of transit, but it is important to note that land uses change very slowly. Performance measures are an increasingly used tool and should be considered as part of the statewide transportation plan. They can measure if one was successful in achieving what was intended.

Politics and Finance

A successful finance plan has to draw a political coalition around it. It must generate public support, but Dean Misczynski was more cynical about political reality. He declared that there are a few issues that terrify legislators, and the gas tax is one of them. The gas tax is a "political antique," instituted at a time when automobiles were a luxury for "early adopters." Because of the present ubiquity of freeways, he thinks increases in the gas tax terrify the Legislature. They are not going to go anywhere near such measures, he predicts.

The obstacles to toll roads, according to Mr. Misczynski, are primarily political. The Democrats are committed to the notion that freeways are free, thus many state Democrats oppose toll roads. The Republicans are not too fond of toll roads either, since they think of them as another form of taxation. The trucking industry also feels that it has already paid for the roads and may not want to pay for another round of user fees, except perhaps on a case-by-case basis on certain highways.

The highway building program after the Highway Act of 1956 was a powerful institutional structure involving Congress, the state departments of transportation, and the federal highway agency, but it eventually lost support. Dean Misczynski suggests that we have to change the way we talk about transportation. Transportation planning has largely become about mitigation. Mitigation is the driving force, and mobility has become secondary through disagreements about the good of travel. For instance, voters care deeply about touchstone transportation issues, such as congestion, but addressing such issues does not necessarily result in a better transportation system. The recently successful passage of a Santa Clara transportation measure, however, was offered as an example of voter approval and interest in new transportation investments.

VII. Creating and Implementing the State Transportation Plan

"Plans are nothing, planning is everything." -- Dwight D. Eisenhower

This session directly addressed what the upcoming state plan should actually be. Should it be a conceptualization, a vision, or a set of rules? What should be the process?

Jeff Morales presented an address on the vision for California's future transportation system. Academic researchers Brian Taylor and Jonathan Gifford discussed the history and implementation procedures of past state transportation plans. The session was concluded by a roundtable discussion.

The Role of Caltrans Within the State

Jeff Morales talked about the State's role in transportation. He addressed where we are as a state and where we are going. It was noted that the role of Caltrans within the state is less clear than it was in the 1960s.

How does the state maintain the quality of life that has attracted so many people in the first place? Transportation is not the only piece of the puzzle. Transportation is often the symptom, not the problem itself. The State does not control local land use, which makes it difficult to really get to the heart of some transportation problems by Caltrans and the regional agencies (MPOs).

Jeff Morales said Caltrans is still redefining the State's role and assessing the relationship to the region's role in the development and implementation of a statewide transportation plan. Once Caltrans defines its specific roles, it can come up with a strategy. Caltrans' mission statement is to improve mobility across California. How to do this: 1) better intermodality; and 2) better use of technology.

Coordination of the transportation linkages needs to be improved. Notably, port investment decisions need to be included in the State Transportation Plan rather than happen independently.

The prevailing thought has been locked in an either/or struggle: transportation improvement OR environmental improvement. Current thinking seeks an AND scenario. The Governor wants to encourage sustainable mobility. Caltrans is moving away from being a highway department. Also, it is important to integrate transportation, housing resources and the environment. The Governor put two-thirds of new money into transit, but it is important to consider how to finance transit operations beyond capital investments.

Brief History of State Transportation Planning

Brian Taylor analyzed the history of the last 100 years of state transportation planning in California. Drawing on research papers by Jeffrey Brown and Lisa Schweitzer, both graduate students at UCLA, Taylor outlined the context for state transportation planning.

The history of state transportation planning is very important and relevant. There were two big issues for transportation planning at the close of the 19th century:

What should the state role be?
How should new investments be funded?

The issues have scarcely changed at all. It is simply remarkable how little they have changed, as stated by Brian Taylor.

Eras of Statewide Transportation Planning in California

1895-1919 Creating the State Highway System
The California state highway program was established to develop the economy of the state. Due to a feared danger of concentrating too much power in Sacramento,
the creation of the state highway system was delayed for fifteen years. The state highway system was finally created in 1909.

1920-1933 A Golden Age for California's (Rural) Highway Program
The gas tax was implemented in 1923 and became the engine of highway finance. This effective finance measure allowed significant construction of rural state highways outside of cities.

1933-1941 From Long-Range Planning to Short-Term Fixes
With the onset of the Depression, state highway policy shifted from attention to long-term economic development to short term economic relief. In 1933, the state became involved in funding highways in urban areas. This would double the size of the state highway system without raising new revenues. Consequently, costs outstripped revenues, and urban needs supplanted the original rural intentions of the state highway program.

1941-1955 Planning for Post-War Highways
Highway funding was increased with the Collier-Burns Highway Act of 1947, and the act marked the beginning of state involvement in metropolitan freeway construction and the fundamental shift to addressing urban needs foremost.

1955-1975 Mass Production of Highways
The adoption of the visionary plan for the California Freeway System in 1959 gave considerable power and influence to the Division of Highways, and it became the guiding force in state transportation planning for nearly twenty years. While considerable amounts of infrastructure were completed, the political consensus behind the visionary plan gradually eroded, beginning with the urban crises and freeway revolts of the 1960s. The fiscal health of the state highway program was also eroded.

1975-1992 Multi-Modal Transportation in an Era of Declining Resources

Caltrans was created in 1973 as a successor to the Division of Highways in an era of concern for multi-modality. It was still a civil engineering organization built around delivering projects. In the 1970s, the federal government mandated Metropolitan Planning Organizations, (MPOs), while state and local governments tried to block the creation of regional MPOs.

1992-Present ISTEA and Its Aftermath

In 1991, ISTEA passed, and the transportation landscape was fundamentally changed.
Under ISTEA, the MPOs were strengthened. ISTEA, TEA-21, and Senate Bill 45 have all devolved power from Caltrans, granting more financial and planning independence to the regional bodies.

Lessons from Other States

Lisa Schweitzer, a graduate student at UCLA, surveyed and analyzed recent state-level transportation planning processes of nine other states: Florida, Maryland, Michigan, Minnesota, New Jersey, New York, Ohio, Pennsylvania, and Texas. The major relevant findings presented were:

- All nine states declared mobility and safety as a planning priority.

- In collaborative processes, stakeholder groups often have different priorities, which can lead to inconsistencies in plans. As a feature common to state planning processes, established stakeholder groups (truck interests, car clubs, etc.) were involved from the start, while smaller groups were not invited until later in the process.

- Due to the different values of stakeholders, conflicting priorities often get built into the plan itself, but vague policies can still give smaller agencies justification for carrying something out. Even contradictory wording can give agencies some protection through different interpretations and review.

- Governments, no matter the size, try to conceive of problems at the scale of the jurisdiction that they have control over.

- Dealing with inter-agency collaboration can be enormously time consuming.

Planning Approaches: Ad Hoc Planning versus Rational Comprehensive Planning

Both Brian Taylor and Jonathan Gifford addressed the differing approaches of ad hoc planning and rational comprehensive planning.

In California, ad hoc planning has been the norm, usually as a response to some sort of fiscal crisis. Most transportation plans can be seen as reactive, trying to remediate projects that were not funded.

Jonathan Gifford thinks ad hoc flexible planning is perfectly acceptable, even desirable. "Rational comprehensive planning is not necessarily the ideal. Some of the greatest damage has been wrought by comprehensive rational planning for a single purpose. Freeways were rammed through cities and it led to a huge backlash. Ad hoc planning is actually better." Supporting the idea that factions and competing stakeholders are good, he quoted from *Federalist Paper 10*: "Faction is in the nature of man."

It was also noted that perhaps it is really an issue of exclusive versus inclusive planning, *not* single purpose vs. ad hoc planning. The general conclusion was that the real answer to planning problems was building institutions that can discover and implement solutions, which is related to the idea of organizational learning discussed earlier.

Achieving Public Acceptance and Approval

Jonathan Gifford advocates strategic planning: systematically thinking to move ahead opportunistically, moving quickly when opportunities present themselves. It was thought by others that a plan needs to implement a vision; otherwise, it shall have a hard time getting anywhere. It should point out different financial scenarios and explore a series of alternative strategies. It needs to provide some guidance for linkages and spending.

Scenario Testing

Professor Mel Webber noted that the only certain thing about the future is uncertainty and that we need to run different scenarios to spell out different causes and effects. John Landis's recent GIS scenarios were lauded as an example of scenario display and providing choices. Considerable agreement was expressed among many participants that scenario testing was desirable.

It was raised that public opinion polls are like traffic models: metaphors of reality, but not reality itself. They are not always reflective of what the public really wants. Testing alternative scenarios is useful. Much useful data is already existing and available. While some original data is certainly required, a great deal of data can be collected from a variety of agencies. This could be a considerable efficiency in both time and cost.

Stakeholders and the Constraints of Time

A process of continued interaction with the public was thought to be undesirable, since the general public would only sustain a limited amount of interest and might react negatively to overexposure. Regional transportation plans do not have *genuine* full public participation anyway, as most people do not even know the identity of their MPO. The planning process is still constrained by time, and some

results are necessary within a given period of time. Sustained interactions with stakeholder groups were seen as more relevant and efficient, since they are more willing to be involved for a sustained period of time. The participation of stakeholder groups, such as those advocating habitat and resource planning and attention to rural issues, is absolutely vital to the success of the process. It was noted, for example, that habitat issues should be integrated within the transportation planning process rather being considered an obstacle.

VIII. Concluding Summary

Throughout the Symposium, an underlying consensus supported the value of mobility. In summary, it was recognized that the rapid growth of California coupled with its changing demographics represent a significant challenge to transportation policy and planning. The economy is also changing, resulting in different travel patterns and needs. With a rapidly changing society and economy, the need for flexibility is crucial. To cope with the many uncertainties ahead, the capacity to be adaptable is essential.

California not only has the largest population in the U.S., its geography is greatly varied. Included in this large state are heavily populated metropolitan regions, which are expanding into contiguous areas. Other regions which are non-contiguous to metropolitan regions are experiencing significant rates of population growth while some remote and rural areas are seeking economic growth and experiencing increased travel and transport moving through their regions.

Devising plans that are sensitive to, and functional for these different geographic characteristics require processes which are developed around different scenarios by those immediately impacted, and should be simultaneously integrated into the fabric of a highly interdependent statewide system.

Institutions are crucial for effective policy and planning. Currently, the short-term focus of political institutions is not geared to the long-term needs of infrastructure investment. Five principles of transportation finance were identified for inclusion *within* the transportation planning process. New technologies show great promise for transportation, but responsive and adaptive institutions are at the heart of making them effective. The capability for organizational learning was stressed as important in implementing new technologies into effective transportation systems beyond the simple availability of the technology itself.

An effective State Transportation Plan must have political support, and an inclusive process should be sought to best achieve this. If “ad hoc” planning is inevitable and perhaps even desirable, reaching desirable outcomes through this process is assisted by testing many different alternative scenarios. It allows better stakeholder participation and helps generate consensus. In seeking wide

participation, GIS is an example of a very good presentation tool for testing different scenarios. The need for diversity at the next conference and within the planning process was emphasized.

Finally, it was suggested that the State Transportation Plan to be developed should contain a variety of elements, including: a statewide vision, identification of constrains and decision criteria, alternative financing scenarios, performance measures, guidance on relationships with regional plans, and special statewide issues, such as high speed rail.

A follow-up conference was announced for late June 2001, at which time these many issues and the ways to integrate the analyses of the changing nature of California's future with the development of California transportation planning will be further discussed by a larger audience of interested parties and stakeholders.

The California Transportation Plan will be developed in two phases. Phase one will be completed by June 2002, and will include a vision for California's transportation system, goals and objectives to reach the vision, issues to be addressed in the CTP, a description of the current system, financial analysis and strategies, and performance indicators to measure progress toward the goals and objectives. Phase two will include problem and issue analyses, preferred strategies, an action plan, policy direction, and a method and cycle for monitoring progress.

Appendix

- Symposium Program
- Roster of Participants